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Cultural Rituals and Obsessive-Compulsive Disorder: Is There a Common Psychological Mechanism?

SIRI DULANEY and ALAN PAGE FISKE

Our species has distinctive features, genetically inherited, which interact with social conditioning. . . . One of these distinctive human features may be a propensity to the ritualization of certain of our behaviors. [Turner 1985a:249]

Anthropological research on rituals usually focuses on their meaning and function, or on their structure. Anthropologists treat rituals as communicative actions whose multilayered meanings are relative to the specific culture. A number of studies have compared the *meanings* of ritual elements within and across cultures. But what are the component elements themselves, the constituents from which people construct rituals? And what is the nature of these constituents? There has been very little attention to the content of rituals, the forms of action and the kinds of ideas that characterize rituals. This article explores the hypothesis that a limited set of common behavioral and ideational features characterize rituals all over the world.

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There have been a number of attempts to describe the distinctive features of ritual as a category of action. Some research, following Van Gennep (1908[1960]), has focused on the structure of rituals. Van Gennep argued that rites of passage all over the world have a tripartite structure in which the participant undergoes a separation from a preexisting state, passes into a liminal status, and finally is reincorporated into a new social category. Other theorists have taken a phylogenetic approach, noting similarities between human rituals and the stereotyped communicative and coordinative rituals of other species. Wallace (1966) asserts that rituals—at whatever phylogenetic level—function communicatively to reduce anxiety and mobilize the organism(s) to efficiently perform some task. The predictability of rituals, Wallace says, makes the world seem orderly, so that organisms are better able to orient and coordinate their behavior. In their book, d'Aquili et al. (1979) develop this approach, focusing on the unifying function of ritual, which they speculate derives from the effects of rhythmic or repetitive behavior on the inferior parietal lobule (see also Needham 1967; Sturtevant 1968; Wendonja 1990). In his last essays, Turner (1985a, 1985b) explored the possible existence of such links between neuropsychology and ritual. Focusing on sound, Tuzin (1984) argues that vibrations just below the limit of human hearing may produce the religious experience that people interpret as direct apprehension of the supernatural, which would explain why bullroarers, large drums, and male chanting are important components of many rituals.

Despite these intriguing proposals, most attempts to define or characterize ritual have ignored its form or content as such and focused on the relation between the means and the desired ends. Many anthropologists, including Goody (1961) and Leach (1968), contrast ritual with technology and discuss the fact that actions labeled as rituals are ones that seem "nonrational," at least to the observer who so labels them. They point out that rituals have powerful effects, nonetheless, because they represent the sacred values of the culture and the core relationships of the society. But Lewis (1980) cogently criticizes this view of ritual as nontechnical or nonrational action, showing that rituality is the expressive aspect of action governed by formal rules. This expressive quality focuses people's attention on a communication—often one whose mean-

ing is ambiguous and to whose performances people have diverse responses.

Theorists have focused on diverse dimensions of ritual. Huizinga (1955[1938]) suggests that ritual derives from another activity performed for its own sake, play. Like Huizinga, Turner (1982:79ff) observes that ritual performances are separated in time and space from everyday action. Turner (1969, 1973, 1975) also shows that rituals entail a characteristic unstructured state that he called *communitas*. Turner (e.g., 1967b) especially emphasizes the symbolic aspects of rituals and their transformative power. Wallace (1966) also stresses the transformative purpose of ritual, and—like many others—describes ritual as action that brings supernatural powers to bear on human goals. Firth (1967:12) focuses on the repetitive, routinized formality of rituals as symbolic communications; he notes that "they are directed not simply to the solution of an immediate technical problem by the most economical means, but are regarded as having in themselves a certain validity irrespective of their technical concomitants." In the same vein, Bloch (1974) hypothesizes that rituals are characterized by formal speech, song, and dance; Tambiah (1985:128) also discusses the communicative and constitutive aspects of ritual, stressing that ritual words and actions are characterized by "formality (conventionality), stereotypy (rigidity), condensation (fusion), and redundancy (repetition)."

However, none of this research has investigated a representative sample of world rituals and systematically compared them with nonritual activities. Without systematic comparison of rituals from around the world, we cannot determine what forms of action they actually have in common. If ritual is a distinctive and universal mode of human action, *what are the actions* that are distinctive and universal? Rituals often involve washing and other forms of purification, orientation to thresholds and boundaries, and colors that have special significance. Rituals tend to involve precise spatial arrays and symmetrical patterns, stereotyped actions, repetitive sequences, rigidly scrupulous adherence to rules (and often the constant creation of new rules), and imperative measures to prevent harm and protect against immanent dangers. These features typify rituals, but they also define a psychiatric illness, obsessive-compulsive disorder (OCD) (cf. American Psychiatric Association 1987).

Obsessive-compulsive patients feel compelled to perform actions that they themselves regard as abnormal, yet absolutely necessary (Insel 1985; Jenike et al. 1990; Rachman and Hodgson 1980; Rapoport 1989a, 1989b, 1989c; Salzman and Thaler 1981). Recent research on OCD has shown that it is related to malfunctioning of the basal ganglia (see Wise and Rapoport 1989) and excessive levels of serotonin in the brain. Treatment with clomipramine or other serotonin-uptake inhibitors alleviates symptoms in a majority of patients (Clomipramine Collaborative Study Group 1991), which suggests that OCD involves a serotonergic dysfunction. Specific forms of behavior-modification therapy are also effective (see Kozak et al. 1988). Most people have experienced mild forms of these concerns or behaviors, from not being able to step on the cracks in the sidewalk, or humming a commercial jingle over and over, to having doubts that lead them to check twice whether the stove is off or the door is locked. But survey research suggests that OCD seriously handicaps 4 to 6 million Americans (Berg et al. 1988; Berg et al. 1989; Flament et al. 1988; Karno et al. 1988). In short, OCD is a well-defined psychopathology with distinctive symptoms that are caused by a psychological defect whose anatomy and physiology are quite specific.

Freud (1963[1907]) argued that obsessional neuroses resemble religious rituals, since in both cases people (1) experience qualms of conscience when they neglect their rituals, (2) prohibit interruptions and in other ways isolate the rituals from other actions, (3) carry out every detail conscientiously, (4) often are unaware of the meaning of their action, (5) are driven by guilt and (6) by repression of an instinctual impulse (although the instincts underlying compulsions differ from those underlying religious ritual). Freud also suggested that (7) both compulsions and religious rituals are the product of symptom displacement and compromise formation. Later, Freud (1950[1912–13]) noted that the most common symptoms of obsessive patients are fear of touching something (or sometimes the need to touch certain things), the tendency for displacement by which the taboo quality of objects is transmitted to other objects, and preoccupation with washing. Freud pointed out that these taboos on touching, the transmissibility of taboo, and washing ceremonies resemble features that are common in traditional religions. Furthermore, he emphasized that obsessive patients, like people observing religious taboos, are often

entirely unable to explain the reasons for their observances, yet feel rigidly bound and compelled by them. In short, religious taboos and obsessive symptoms resemble each other in five ways: "the prohibitions lack any assignable motive . . . are maintained by an internal necessity . . . are easily displaceable and . . . there is a risk of infection from the prohibited object . . . and they give rise to injunctions for the performance of ceremonial acts" (Freud 1950[1912–13]:28–29). Despite the diversity of their approaches, in one way or another most anthropological theorists also tend to emphasize that people regard their cultural rituals as just necessary. People feel compelled to reenact stereotyped ritual actions in the traditional manner, "because that is what we have always done." Whatever the extrinsic reasons people give for the performances and whether or not people legitimate the rituals by referring to myths, the ritual actions are inherently compelling.

Freud focused on these attitudes of people toward their actions and the putative motivational sources of the actions; he only briefly considered the actions and thoughts themselves. Since he wrote, descriptions of OCD and of cultural rituals have increased enormously in quantity, quality, and comparability, and the two phenomena are much better understood. This permits us to make systematic comparisons and to consider their significance. When we make these comparisons, we find that there is a striking similarity between OCD symptoms and the features that are characteristic of rituals. *This does not mean that rituals are collective disorders or in any way pathological,* any more than it implies that OCD patients are performing culturally meaningful rituals. But it does suggest that the psychological proclivities that may underlie cultural rituals may be closely related to the mechanism that is malfunctioning in OCD patients. In rituals, these actions are socially legitimated and meaningful, while OCD patients are driven to perform actions that have no cultural meaning—except that they mark the person as "crazy." The participant in a culturally meaningful ritual is neither compulsive nor obsessive, because the ritual is an intentionally adopted and appropriate means to carry out some culturally intelligible goal. In contrast, the OCD patient does not want to carry out her compulsive rituals and, generally, recognizes that her own obsessions are incoherent. The patient herself and other members of her culture regard her actions and thoughts as inappropriate, ineffective, irrational, and hence "crazy"—they disrupt her rela-

tionships and interfere with the things that she wants to do. Thus, while the similarity of the actions and thoughts in OCD and cultural rituals suggests a common source, the significance of the actions and thoughts is very different in the two cases.

If rituals and OCD share a number of distinctive features, what is the nature of these features, and why do the same elements appear in both contexts? In both cultural rituals and OCD, people simplify the world by orienting to a very small number of salient concerns and actions. That is, they reduce many varied relations to fewer, more regular, orderly, concentrated, and schematic ones. Simplification is the foundation of most religious and mythological explanation, art, and memory, as well as some kinds of technology and "magic." It is also the basis of all scientific modeling and theoretical explanation. More generally, learning involves distinguishing the important and meaningful from the inconsequential, and attending to the schematically significant relations. Understanding entails recognizing, or constructing, parsimonious order where it was not apparent. Likewise, effective technical control depends on recognizing the causal patterns in the irrelevant "noise," and intervening at the specific points and in the particular modes that effect the appropriate changes. In short, to comprehend and control the world, people have to reduce its complexity (cf. Douglas 1966).

However, different people perceive different regularities in nature and society and attribute different significance to the patterns they perceive. Furthermore, in certain circumstances, people attribute overwhelming significance or efficacy to a very few distinctions, patterns, or acts, and concentrate their concerns on just these issues. Most of the time, most people's attention is diffused over a myriad of everyday issues, and their actions are directed to diverse ends. When people suspend attention to these innumerable everyday issues and collectively focus sharply on a few marked concerns and actions, we describe them as performing ritual. This collective suspension of everyday structure and concentration of meaning on a reduced set of highly condensed distinctions is what Turner (1969, 1973, 1975) characterized as communitas.

Sometimes individuals narrow their focus and attend to one or a very few distinctions, patterns, or acts, although the narrow specificity and magnitude of their concerns do not make sense to others around them. When individuals simplify and focus to the

point that they themselves feel that it interferes with attention to everyday needs, we describe them as afflicted with OCD. OCD is characterized by *a need for absolutes,* for definiteness *regarding some very particular issue.* People with OCD seek certainty and have difficulty tolerating ambiguity. At the same time, OCD involves an extreme narrowing and sharpening of focus, like looking at things through a telescope or microscope. People need clear-cut demarcations in some tiny portion of the spectrum of life. In OCD, the directive force of rules and models is reduced to simplicity, rigidity, and unitary order in place of its usual diffuse, multifaceted complexity. In OCD, individuals attempt to reduce everyday ambiguity and complexity to certainty about a few simple, crucial distinctions. Participants in cultural rituals do much the same thing. What OCD patients do idiosyncratically and alone, participants in cultural rituals do legitimately and collectively.

FEATURES OF OCD

OCD begins in childhood or adolescence in about half of all cases. Swedo et al. (1988) list the presenting symptoms reported by child and adolescent patients with severe primary OCD (see also Berg et al. 1986; Cooper 1970). The following symptoms are characteristic (we will use the code letters to identify specific OCD-like features in the following section): *I:* concern with *inanimate* (e.g., household) items; *CO:* prescribed procedures for *cleaning* inanimate *objects; CD: concern* with *dirt,* germs, and environmental toxins, or anything regarded as polluting, dirty, unclean, or impure; *RC:* actions to *remove* contact with *contaminants; CS: concern* or disgust with bodily wastes or *secretions; RW:* frequently *repeated* hand *washing,* showering, bathing, tooth brushing, or grooming; *T: touching* something simply in order to touch; *FH: fear* of *harming* others or the self; *PH:* special measures to *prevent harm* to self or others; *FT: fear* that something *terrible* will happen (i.e., fire, death, illness of self or someone else); *CR: checking* and *rechecking* to make sure of something; *FS: forbidden,* aggressive, or perverse *sexual* thoughts, images, or impulses; *VH:* having *violent* or *horrific* images; *FB: fear* of *blurting* out obscenities or insults, of doing something embarrassing, or of acting on criminal impulses; *CN:* having to *count* to a specific *number* before being able to perform an action; *LN: lucky* or unlucky *numbers; N: numbers* that have special

significance; *C: colors* that have a special significance; *OA: ordering* or *arranging* things so that they are in their proper place; *AS: arranging* people or things *symmetrically* or in some precise spatial configuration; *AT: attention* to a *threshold* or entrance; *RA: repeating actions* (i.e., going in and out of a door, up and down from a chair more than once); *HC:* stereotyped *hoarding* or *collecting* actions; *S: scrupulosity:* extremely rigid and literal interpretation of a religious doctrine; *M:* intrusive nonsense sounds, words, or *music.*

In addition, recent research (Rapoport 1989b, 1989c) indicates that trichotilomania—a condition in which women pluck out their hair, particularly head hair—may be related to OCD, so we note removal of hair where it occurs. Most OCD patients have only a few (or just one) of these symptoms at any point, although they may shift from one symptom to another during their lives. Some patients have only obsessive thoughts and do not perform any compulsive actions.

Again, everyone does these things to some degree, but a few people are so preoccupied with these unwanted actions, concerns, and ideas that the symptoms interfere with their ability to function; such people are classified as having OCD. For example, Rapoport (1989b:90) describes a boy who was injured in a football accident and woke up after his brain surgery having to do everything by sevens: "Jacob had to touch everything seven times. He swallowed seven times, and asked for everything in sevens." His life was totally consumed by this preoccupation until treatment with clomipramine alleviated his symptoms. Another boy's life was wrecked by an obsessional fear of pollution. Zach always felt dirty and began washing his hands 35 times a day. He also reported that he had to go through various rituals whenever he swallowed saliva: "When I swallowed saliva I had to crouch down and touch the ground. I didn't want to lose any saliva . . . later I had to blink my eyes if I swallowed. . . . For a while I had to touch my shoulders to my chin. . . . [Later] I had to touch all my fingers to my lips a few times if I swallowed saliva" (Rapoport 1989b:43–44). Zach's rituals were greatly reduced by clomipramine.

These obsessions and compulsions disrupt the lives of OCD patients because they are compelling, yet devoid of cultural sense and value. In contrast, culturally prescribed rituals are meaningful, legitimate, and necessary. But an examination of some of the most detailed and comprehensive ethnographies reveals that cultural

rituals are composed of actions and thoughts that are morphologically similar to the symptoms of OCD patients. As they are transmitted across the generations, cultural rituals probably tend to retain the ideas and actions that have the greatest psychological impact. If humans are especially concerned about a set of issues that includes contamination and pollution, spatial configurations, boundaries, repetition, and numerology, ideas and actions related to these issues would tend to be retained. Some people—OCD patients—have an extreme, dysfunctional concern about these issues. But for most people, these concerns give rituals their transformative powers.

OCD FEATURES IN CULTURAL RITUALS

The following review of ethnographic materials is organized geographically. In each ritual, the actions and concerns that clearly resemble specific OCD symptoms are indicated with parenthetical codes corresponding to the list above. We have only indicated codes for the features that most clearly resemble OCD symptoms. It is important to note that many rituals involve components that are the opposite of OCD thoughts or actions, and whose efficacy apparently results from the fact that these elements elicit OCD-like concerns. For example, people conducting an initiation may apply contaminating substances to initiates in order to evoke horror and disgust.

Poole (1982) gives a condensed description of the complex *ais am* initiation rites of the Bimin-Kuskusmin of the West Sepik District of Papua New Guinea. They begin with a seven-day preparatory period of taboo observance, followed by seven stages of ritual (*N*). Then, as the ritual begins, the novices are taunted with chants that refer to them as polluted by female sexual fluids (*CD, CS*). Then, female initiators remove the white pigment that protects boys' joints, and cover their heads with yellow funerary mud (*C*). The boys are told they will be killed, and from this point on, they are repeatedly made to fear that something terrible will happen to them (*FT*). After more hazing about their polluted state, the novices are sealed inside a root house, and then, one by one, made to extend their heads through a screen at the "woman's entrance" (*AT*). Male initiators with red pigment on their foreheads and females with black pigment put black pigment on the boys' fore-

heads (*C*), and then they are made to eat five female foods and made to vomit. This is repeated with five different female foods on each of a total of four days (*N, RA*). In the next stage, the initiators smear the boys with the blood of sows, while they are further harassed about their polluted state (*CD*), including the residues of breast milk that contaminate them from their infancy (*CS, CD*). At the third stage, the novices go into a fire house, where "they are assigned a position in an elaborate spatial configuration that separates virtually all categories of participants in the rite" (1982:126; *OA*). After more hazing about their pollution (*CD*), the novices' topknots are severed, and they receive incisions, each encircled with black pigment (*C*), and then they are shaved. Blood from their incisions is applied to their penes, and the boys are told this is destroying their penes (*CS, CD, VH*). Other pigments are used (*C*), and then the boys' right nasal septum is painfully pierced. Hot marsupial fat is applied to the novices' arms, the resultant blisters are lanced, and the pus is collected, some of it to place on a phallic fruit worn by certain initiators (*CS*). The novices are painted with black and red pigments (*C*). Listening to sacred narrations, the novices are told that during the recitation of the myth they must not swallow their saliva (*CS*), which would contaminate them (*CD*). Subsequently, the boys are forced to eat a mixture of salt and pus, everyone resumes their spatial positions (*OA*), the boys are painted with more pigments (*C*), and their left nasal septum is pierced. Over the following days, they are repeatedly painted with various protective pigments (*C*), and they receive further incisions on two occasions. Both times, blood from these incisions is smeared on the penes of other initiates (*CS*). Later, the boys eat five male foods (*N*). Then there are further stages of painting with white pigment (*C*), and anointment with fat and oil and boar blood. The rite concludes with seven days of seclusion (*N*). Poole points out that an important aspect of the initiation is that the boys are imprisoned in the ritual houses for days on end with their own feces, urine, vomit, and pus, so that disgust with their bodily wastes is a continuous aggravation (*CS*). Thus, in Poole's description of this one ritual sequence, we find 11 different OCD-like features, most of of which occur repeatedly.[1]

Many initiation rituals in this part of the world exhibit similar features. For example, Lewis (1980:86–87, 127–129, 151–153) describes purification by bathing and penis bleeding.[2] However, these

OCD-like features are not limited to initiation rituals. Meigs (1984) describes many concerns about bodily secretions and actions to remove contact with contaminants among the Hua of eastern highland New Guinea. Gell (1975) describes the *ida* ritual for the fertility of sago palms among the Umeda, another society of the West Sepik District of Papua New Guinea. The ritual consists largely of dancing by colorfully painted men in large masks, accompanied by the monotonous blowing of wooden trumpets. The dance itself is a form of highly repetitive collective action (*RA*); if the same stereotyped motions lacked cultural legitimation, they would be symptoms of OCD.[3] Gell includes several plates depicting the body painting, and devotes 21 pages to explaining the special significance of the coloration of the dancers (*C*). Gell also reports that the principal dancer—who enacts the cassowary—is believed to be "endangered by the regurgitated food remnants deposited by cassowaries [*CS*]. If he should inadvertently step on these excreta of the cassowary he would fall ill" (1975:169; *FT*). "They must wash their hands afterwards, and spit betel on them as a kind of magical 'disinfectant', since the *nab,* as the white material is called, is an intrinsically dangerous and potent substance" (1975:173; *RC*). There is another possible connection between this Umeda ritual and OCD: an uncommon but distinctive symptom of OCD is hearing a few bars from a tune incessantly, sometimes for many years, and the repetitive sequence of notes played by the trumpeters hour after hour more or less resembles such an experience.

In addition to the qualities of the ritual actions and colors themselves, the Umeda actors' attitudes toward their ritual actions also match the outlook of many OCD patients toward their symptoms. Like many ethnographers reporting rituals elsewhere, Gell (1975:211–215) states that the Umeda could not say anything about the "meaning" of their actions or give any exegesis of them. The Umeda simply refer to their tradition of performing these rituals since time immemorial. For example, the ritual performers chant the same songs for long periods during the second night of the ritual—songs that are comprised of sequences of very similar lines (*RA, M*). But the songs "have very little *conscious* meaning in the minds of the singers themselves" (1975:201, emphasis in original). Elsewhere in Melanesia, Malinowski provides numerous examples of Trobriand agricultural rituals based on spells with extensive verbal repetition (1978[1935], e.g., pp. 96–102, 146–151; *RA*). It

may be that certain repetitive sound patterns, especially percussion, have powerful physiological effects that contribute to the efficacy of rituals (see d'Aquili et al. 1979; Needham 1967; Sturtevant 1968).

OCD patients sometimes fear that they will do something awful (although they do not act out these thoughts), and, very rarely, have horrific ideas and images. If we restrict our search to *representations* of prohibited aggressive and sexual behaviors that are antithetical to normal sociality, we can find them throughout the myths that are recited in or about many rituals. We find horrific mythic images that make the initiation itself appear tame. Tuzin (1980) records the myths that are the sacred mandates for the rituals at each of the seven stages of the Tambaran cult among the Ilahita Arapesh of the Sepik River region. At the core of each myth is a horrific act of violence (*VH*), or a forbidden, aggressive, or perverse sexual idea (*FS*). The first myth recounts the murder of a woman who discovers how to make masks. The myth that explains the second-stage ritual tells of the murder of the woman who discovered how to make bullroarers. In the third, the dogs who are the originators of the ritual are observing food taboos, but succumb to their hunger and take to eating human feces. The fourth myth starts with a monster killing and eating village children until a man tricks it, cuts off its head, and has the body chopped up and burned. The fifth myth begins with a primordial time when people only knew how to deliver babies by cutting open the mother, thereby killing her. The sixth myth focuses on boys' killing and eating a cassowary that turns out to be a woman, followed by the men killing the boys to take their song from them; this myth also tells of the origins of pig exchange in a time when men gave their initiation partners their own human children to eat. The myth that accounts for the last stage of the Tambaran ritual concludes with a sequence in which a culture hero vomits up food for some boys to eat; the boys grow up and attempt to seduce all the women of the village, whose husbands spear the boys to death.[4] People in diverse cultures commonly use such myths to explain rituals, while other myths are actually embedded in the rituals. Many of these myths are collective, traditionally transmitted ideas and images of fundamental violations of taboos—especially ones concerning sex and violence—that resemble the representations that haunt individual OCD patients.

Myths associated with rituals often contain many horrific events. For example, Berndt and Berndt (1964) describe mythical charters for rituals—including subincision and other blood-letting rites—among the Ooldea and other aboriginal groups of Western Australia. One myth that they describe as both widespread and typical tells of a detached penis as large as a person that burrows through the earth and rock (leaving distinctive landmarks) in pursuit of women, making water holes wherever it urinates. It enters women, but dogs bite it and women beat it with their digging sticks (1964:208–209). Other Australian myths that legitimate rituals describe castration, dismemberment, a magical rape whose perpetrator is killed by breaking off his penis, a case of apparently incestuous adultery whose perpetrator is speared to death, and an itinerant man who swallows people wherever he goes and is killed with spears (1964:206, 224, 226, 233). Berndt and Berndt (1964:236, 240) also report bathing and shaving in fertility rites performed by aboriginals in Arnhem Land, Australia.

People often perform rituals to avert dangers thought to be inherent in the act of homicide. Radcliffe-Brown (1964[1922]) describes such a ritual performed in the Andaman Islands when a man kills someone. The killer leaves his home and lives in the jungle observing various taboos.

> He must not feed himself or touch any food with his hands, but must be fed by his wife or a friend [*PH*]. He must keep his neck and upper lip covered with red paint [*C*]. . . . If he breaks any of these rules it is supposed that the spirit of the man he has killed will cause him to be ill [*FT*]. At the end of a few weeks the homicide undergoes a sort of purification ceremony. His hands are first rubbed with white clay . . . and then with red paint [*C*]. After this he may wash his hands and may then feed himself with his hands [*RC*]. [Radcliffe-Brown 1964[1922]:133]

Mainland Asian rituals also are comprised of many features that resemble the symptoms of OCD patients. Ortner (1978:35) describes a ritual in Nepal in which Sherpas repeat the same prayer three times on each of two days, prostrating themselves hundreds of times (*N, RA*). She also describes (1978:96) a ritual in which Sherpas place 100 miniature clay shrines, 100 food cakes, 100 butter lamps, and 100 dough effigies in a radially symmetrical configuration that is part of a spatial array in the shape of a hand (*N, AS*).

In South Asia, a great many rituals are shaped by concern about bodily secretions, contamination, and purification. Still other rites focus on the removal of *dan*—inauspiciousness, danger, or unspecified harm. Raheja (1988) gives detailed descriptions of many of these rituals performed by Gujars, a caste of Hindi-speaking people in Uttar Pradesh. These rituals are rife with numbers, colors, and spatial configurations with intrinsic significance, as well as washing and frequently an orientation toward thresholds. These rites, like many in South Asia, also carry verbal repetition to an extreme. All of the rituals that Raheja describes are measures to prevent harm of a more or less unspecified kind, to move it (spatially) away, and so in a general sense correspond to these common OCD symptoms. The measures that Gujars take to remove harm involve a number of other OCD-like features. For example, Raheja quotes one text calling for a rite that involves bathing, followed by 12 offerings of red and white substances to 12 deities (1988:78; *N, C*). Another prescribed ritual calls for bathing and teeth cleaning before making offerings of several black things (*C*): blackened rice, black cloth, black flowers, black sandalwood paste, black sesame, black barley, black gram, a black calf, and a black cow (ideally, seven black cows). The image of the deity should be circled seven times to the right—seven is a frequently specified number in Gujar rituals (1988:81; *N*). Raheja also reports that

> spatial configurations may be implemented in the transferal of inauspiciousness, and this emerges more clearly in the case of *takkarpurat* prestations. Designs called *takkarpurat* ("protection from harm") are drawn with flour on an area of the ground that has first been smeared with cow-dung paste. The act of drawing itself is called *purat purna*, "drawing protection." The design takes the form of a square oriented toward the cardinal directions, with two transverse lines crossing the middle.
>
> The intersection of the two transverse lines is generally positioned over the household *okhil*, a small plastered depression in the earthen floor of the house that is used as a mortar for husking and grinding operations [*OA*]. [Raheja 1988:85]

The accompanying figure in her book shows that the design is bilaterally, and often radially, symmetrical (*AS*).

Gujar birth rituals are full of OCD-like features. After giving birth and before nursing, Gujars perform a ritual to purify the mother's breasts (first the right, then the left) by sprinkling them with cow's milk (Raheja 1988:95; *RC*). Another ritual to protect the well-being

of the mother and new born child is called "the sixth"; it involves various numerological prescriptions. Like many other Gujar rituals, it involves an integer and one quarter, calling for five-and-one-quarter measures of grain (*N*). Immediately after doing "the sixth," the mother performs a "threshold prestation" (1988:96–101; *AT*). If the child is born on an astrologically inauspicious day, a Brahman is called to perform a ritual that requires him to recite a mantra (Sanskrit verse) 28,000 thousand times (*N, RA*), and later create *vedi,* "spatial configurations" drawn on the ground (*AS*). Other parts of this rite entail several numerical and color specifications (*N, C*), as well as five consecutive ritual showers for the parents and child, after which they all bathe in clear water (1988:102–107; *RW, N*).

A particularly common complaint of OCD patients is that they shower incessantly in a stereotyped sequence of movements. Raheja's description of one major category of Gujar rituals for removing dangerous qualities (*dan, PH*) reads like a psychiatrist's account of an OCD patient with this symptom:

> Like actions, certain substances may act as disarticulative agents. In such cases, certain food items, water and earth from various locations, roots and herbs (*I*), cloth of particular colors (*C*), and so forth, are brought into contact with the body of the afflicted person—but never consumed by that person—in order to effect a separation of the inauspiciousness. . . . Bathing with water mixed with such substances is sometimes part of the disarticulative phase of ritual sequences. The baths always begin at the head and proceed downward over the body—the *utarna* "removing" or "taking away" direction—and are followed by . . . prestations for the removal of the negative qualities just separated from the body. [Raheja 1988:90—these are all *RC*]

Raheja (1988) describes many other Gujar rituals comprised of numerological and color prescriptions, spatial configurations, bathing, showering, sprinkling, hand washing, and ritual actions at a threshold. Two other kinds of rituals also resemble another common OCD symptom: touching simply in order to touch.

> In both *warpher* and *chuwana,* the disarticulation of inauspiciousness is accomplished by bringing objects into contact with, or into a particular spatial relationship with, the body of the afflicted person. . . . [*OA*]
>
> *Chuwana* may be translated as "the touching" (a causative form of the verb). . . . To perform *chuwana,* a dish of grain or . . . one and one-quarter rupees [*N*] is waved over the body of the afflicted person; the articles are touched first to the feet, then moved upward to the head, and finally brought downward again toward the feet. . . . Alternatively, these items may be circled seven times [*N*] in a counter-

clockwise movement, before the afflicted person. These movements separate the inauspiciousness from the body and cause it to be absorbed . . . by the coins or grain. . . . [*RC*] They are given to the appropriate recipient, who thereby assimilates the danger they contain and moves it away . . . from the afflicted person. . . . No one should touch these articles before they are given to the appropriate recipient; inauspiciousness will be transferred to the first person who comes in contact with the . . . items. [Raheja 1988:88; *CD, PH*]

Gujars often recite mantras in their rituals. On one occasion, Raheja reports a man reciting mantras for nine days (Raheja 1988:187, *RA*). In another ritual that included touching, sprinkling, and a *vedi* spatial configuration, an astrological *pandit* recited one mantra for three days, "eleven and one-quarter thousand times, as he put it" (1988:111–112; *N, RA*). Repetitive chanting, sometimes numerologically patterned, is a part of rituals elsewhere in Asia; for example, Bogoras (1979[1904–09]:303) reports that the Chukchee shamans in Siberia sing songs that have no words (*M*). "Their music is mostly simple, and consists of one short phrase repeated again and again."

Washing and other kinds of purification with water are important in the major world religions: bathing in the Ganjes River for Hindus, baptism for Christians, stereotyped sequences of washing before prayer among Moslems and Jews. Across the Indian Ocean from the Gujars, Bloch (1987) describes another washing ritual: the royal bath, which is the central rite of Merina kingship in Madagascar. At the new year, the king visited the royal tombs and physically touched the remains of his ancestors—a polluting act (*CD*). During the evening, there was an interval of sexual license when normal restrictions were inoperative. A royal bath was filled with waters from special streams and lakes associated with the wild fertility of the indigenous female predecessors of the Merina dynasty. At midnight, the point of transition to the new year, the king stepped into the bath, emerging to put on new regalia. Then he sprayed his assembled subjects with water in an act of blessing. After receiving the signal that the king had bathed, the head of every household repeated this ritual, concluding by sprinkling the members of the household with his bath water.

In addition to describing ritual washing, Turner (1962, 1966, 1967a, 1967b) and others (e.g., Richards 1982[1956]) have written extensively about the symbolic importance of particular colors in African rituals.[5] In fieldwork, one of us observed that washing and

special colors and numbers are integral components of numerous rituals among the Moose ("Mossi") of Burkina Faso. For example, many kinds of Moose sacrifices require chickens of a specific color (red, black, or white), and diviners often prescribe offerings of either red or white kola nuts, white cloth, or (white) cotton (*C*). Moose wash the body of the deceased, and men wash themselves three times in a magical solution to make themselves impervious to piercing weapons. Moose rituals involving men usually incorporate the number 3, 33, or 333; rituals involving women use 4, 44, or 444; for example, Moose carry the body of a deceased woman around the compound four times, and carry a man's body around three times (*N*). On the other side of Africa, Saitoti (1986:66–76) describes his circumcision, an act which made him into a Maasai warrior. Excerpts from his account clearly show five OCD-like features: significant colors, washing, and concern about bodily substances, hair, and contamination:

> Circumcision means a break between childhood and adulthood. For the first time in your life, you are regarded as a grownup, a complete man or woman. . . . Three days before the ceremony my head was shaved. . . . I even had to shave my pubic hair. . . . At dawn I was summoned. . . . I laid the [ritual] hide down and a boy was ordered to pour ice-cold water, known as *engare entolu* (axe water), over my head. . . . The circumciser appeared, his knives at the ready. . . . He splashed a white liquid, a ceremonial paint called *enturoto*, across my face [*C*]. Almost immediately I felt a spark of pain under my belly as the knife cut through my penis' foreskin. . . . I heard a call for milk to wash the knives, which signaled the end, and soon the ceremony was over. . . . I laid on my own bed and bled profusely. The blood must be retained within the bed, for according to Maasai tradition, it must not spill to the ground. . . . [*CS*] In two weeks I was able to walk and was taken to join other newly circumcised boys far away from our settlement. . . . We were not allowed to touch food, as we were regarded as unclean [*CD*], so whenever we ate we had to use specially prepared sticks instead. We remained in this state until our wounds healed and our headdresses were removed. Our heads were shaved, we discarded our black cloaks [*C*] and bird headdresses and embarked as newly shaven warriors, *Irkeleani*.

Native American rituals also exhibit OCD-like features. Gregor (1977:335–336) describes the ritual by which a Mehinaku man of central Brazil becomes a shamanistic curer. The rite, which consists primarily of three months' seclusion while observing taboos, begins and ends with other shamans washing him in water in which they have steeped a magical fruit. There are many horrific themes in a creation myth recited at all the ceremonies of the Desana subgroup of the Tukano, an Amazonian tribe in the Vaupes Territory of

Columbia (Reichel-Dolmatoff 1971:24–37): incestuous acts that gave rise to menstruation and menarche rituals, as well as kidnapping, rape, and attacks by giant stinging horse flies (*VH*). Faron (1967[1963]) describes death and fertility rituals of the Mapuche of central Chile. When a person dies, the Mapuche—like people of many other cultures—wash the corpse. Then they display it in the house

> for an ideal period of four days or a multiple thereof (four and its multiples being of magical significance among the Mapuche). [1967(1963):230; *N*]

> Although on display, the corpse is not touched by the viewers, for it is dangerous [*FT*]. This is common knowledge. It is preserved in state for the ritually perfect number of days (if possible) because by so doing the well-being of the living as well as the dead tends to be insured. [1967(1963):232; *PH*]

The coffin is painted black (*C*) and oriented with the head to the east (*OA*). Like mourners in many parts of the world, the Mapuche mourners tear at their hair. Mapuche fertility rituals also involve spatial arrays and color symbolism, sometimes in combination; "A black [sheep]skin, which calls for rain, is placed to the left of the altar and a white one, for sunny weather, is placed under the bowl of blood on the right of the altar" (1967[1963]:246; *C, OA*). Together with the actual sacrifice, each part of the ritual consists largely of four stanzas of prayer and four sessions of dance (*N, RA*). Faron also writes that "ideally, each day's ritual is divided into four parts, each largely a repetition of the other" (1967[1963]:244; *N*). "Ideally, the prayers and other activities must be repeated perfectly" (1967[1963]:247; RA).

Wilson (1979[1956]) describes the Zuni (New Mexico) Shalako ritual (one that entails extensive use of meaningful colors) in which a group of men make offerings at six points around the village; other participants smoke special cigarettes, each taking six whiffs and waving the cigarette in the direction of the six Zuni points of the compass (*N*). The six masked Shalako figures who are the central figures in the rite are received in six houses (*N*), where they dance and chant. "The monotonous chanting of the ritual went on without pause for hours: an unvarying repetition of six beats that ended in a kind of short wail" (1979[1965]:294b; *N, M*). Vogt and Vogt (1979[1970]:279–280) also describe numbers and colors with special significance, and bathing, in the Great Vision Ceremony of the Mayans of Zinacantan, Mexico.

There are numerous means of avoiding pollution in different cultures and many kinds of purification rituals; while washing in water is prototypical of OCD patients in the United States, it is not the only way of removing the effects of dangerous contacts. Meigs (1984:128–129) cites nose bleeding and vomiting, penis bleeding, tongue piercing, tongue scraping, sweating, and eye washing in various New Guinea societies. Rituals in many cultures involve the application of purifying substances that counteract contamination; we have seen examples above of using penis blood and various pigments. People also often use fire and smoke. Opler (1936) found that Mescalero Apache are extremely concerned about the dangers of contacting corpses, so that they bury the dead as soon as possible (*FT*). They also bury, burn, or break all objects used by or associated with the dead person, including jointly owned articles and presents the dead person gave; the house in which the death occurred is destroyed and the contaminated site abandoned (*CD, PH*).

> The time during which the living and dead are in contact is reduced to a minimum, a logical procedure in view of the dread sickness it is believed can be contracted from the dead, from the sight of a corpse, or from the possessions of the deceased. . . . [*PH*]
>
> The effort to efface the memory of the dead relative goes much further. Those who assume the unwelcome task of dressing the corpse and burying it burn, upon their return, all the clothes they wore while performing these duties. They also bathe their bodies in the smoke of a sage called "ghost medicine," which is thought unpleasant to ghosts and efficacious in keeping them at a distance [*PH*]. In fact, all members of the bereaved family are likely to "fumigate" themselves in this manner and resort for some days to various devices that are considered useful in avoiding dreams of the dead or in warding off the visits of ghosts. Such practices consist in crossing the forehead or bed with ashes, or hanging some crossed pieces of "ghost medicine" above the head before retiring.
>
> At the grave, just before their return, the members of the burial party take a final precautionary measure [*PH*]. They brush off their own bodies with green grass which they then lay at the grave in the form of a cross. The conception is that when this is done, any danger of falling victim to "ghost sickness" will be brushed away and left at the grave of the dead. . . .
>
> The grave is never revisited. [Opler 1936:84–85]

In this burial ritual, the Apache are concerned about contamination by the corpse or the belongings of the deceased and also are concerned that ideas, images, or words associated with the dead person will intrude on them. Many OCD patients complain of various unwanted ideas, images, or words that constantly intrude

on their thoughts. And, just as many OCD patients are preoccupied with not blurting out something extremely inappropriate, so Apache (especially the relatives of the deceased) assiduously avoid uttering the name of the dead person. If the deceased was named after some object, this word can no longer be spoken within the hearing of the deceased's relatives, and the object is given a new name. Relatives will not even call anyone else by the same kinship term that they used to address the deceased. Close relatives also cut their hair.

Every kind of symptom that is diagnostic of OCD appears in this collection of some of the most thorough, classic ethnographic accounts from cultures all over the world. (The only clear exception is the absence of any ethnographic reports of ritual hoarding of valueless objects: OCD patients sometimes collect rooms full of newspapers, or pick up and bring home certain kinds of trash whenever they see it.) Clearly, the ethnographic literature on rituals is rife with OCD-like behaviors, representations, and concerns. But in a Frazerian compendium such as this, there is always the risk that the examples have been chosen selectively. Is the rate of occurrence of OCD-like features actually higher in rituals than in other contexts?

ARE OCD-LIKE FEATURES MORE COMMON IN RITUALS THAN IN OTHER ACTIVITIES?

To answer this question, we decided to determine the frequency of these OCD-like features in a specific category of ritual that was common and easy to identify. We chose life-cycle transition rituals: birth, initiation, marriage, and death. For comparison, we selected another common human activity that we could find described by the same ethnographers. We chose work. Our hypothesis was that OCD-like features would be more common in transition rituals than in comparable episodes of work. To assure comparability, we chose descriptions of ritual and of work by the same ethnographer in the same ethnography.

We used the Human Relations Area Files Probability Sample (Levinson and Wagner 1986), taking every third culture in alphabetical order. We did not use the Area Files as such; we used all of the materials available in the anthropology library at the University of Pennsylvania. To maximize the quality of the descriptions, we

limited the sample to ethnographies written by professional anthropologists. We took the first episode in each ethnography that the ethnographer specifically labeled as a ritual and the first episode in the same book that the ethnographer labeled as work. In many cases, we could not locate any source on the culture that was written by a professional ethnographer after 1930 and that contained descriptions of both ritual and work, so we had to exclude these cultures from our sample. We took the first 20 cultures that met our criteria. Five were from North America, one from Central America, one from South America, one from Europe, one from the Mediterranean, two from the Middle East, five from Africa, one from Asia, and three from the Pacific. There were nine birth rituals, seven initiation or coming of age rites, three marriage rites, and one death ritual. We divided these descriptions into separate units, each of which described a single action or thought, and coded the first 20 such units of ritual and the first 20 of work from each culture. For each unit, we recorded which of the 25 OCD-like features were present, if any. Two coders independently coded all of the segments and then reconciled their codes. Then we trained a third coder, who was blind to the hypothesis, and he independently coded all of the segments. The three coders then discussed and reached agreement on the final coding.

We wanted to determine the reliability of the initial independent codings by the first two coders. So we compared the assessments of the first two coders about whether each unit exhibited at least one OCD-like feature and found that Cohen's kappa was .64. We then compared the assessments of the coder who was blind to the hypothesis with the conclusions that the first two coders reached after reconciling their codes with each other. In this comparison, Cohen's kappa was .57. These reliability coefficients are not particularly impressive, partly because in each case they include the initial period during which the coders were learning the codes. Furthermore, we coded the passages using only the 20 specific segments of text, and it was often unclear from this narrow, immediate context whether an action or concern met the criteria. But the important fact is that all the final codes used in the analyses were the product of three independent codings, discussed and reconciled on two occasions. Furthermore, the reliability in determining the number of OCD-like features per segment of 20 units

of ritual or of work is of course greater than the reliability for separate units.

RESULTS

In the ritual segments, the mean number of OCD-like features was 5.45; the mean in the work segments was 1.20. That is, there were more than four times more OCD features in the rituals. A *t*-test shows that this difference is highly significant ($t(19) = 3.58$; $p = .002$). Some units have more than one OCD feature, and we can compare the number of units that have at least one OCD-like feature. In the rituals, the mean number of units that have at least one OCD feature is 3.90, while in the work the mean is 1.10. This difference is also highly significant ($t(19) = 3.70$; $p = .002$).

Figure 1 shows the frequency of OCD-like features in the matched segments of ritual and work in each of the 20 cultures. Looking at Figure 1, it is obvious that two cultures have a very high number of OCD-like features in the ritual segments we coded: the Kapauku and the Ojibwa. But if we delete these two outliers, the difference between rituals and work is still highly significant: (this deletion reduces the variance, so for number of OCD-like features, $t(17) = 4.03$; $p = .001$, and for units with OCD-like features, $t(17) = 3.78$; $p = .001$).

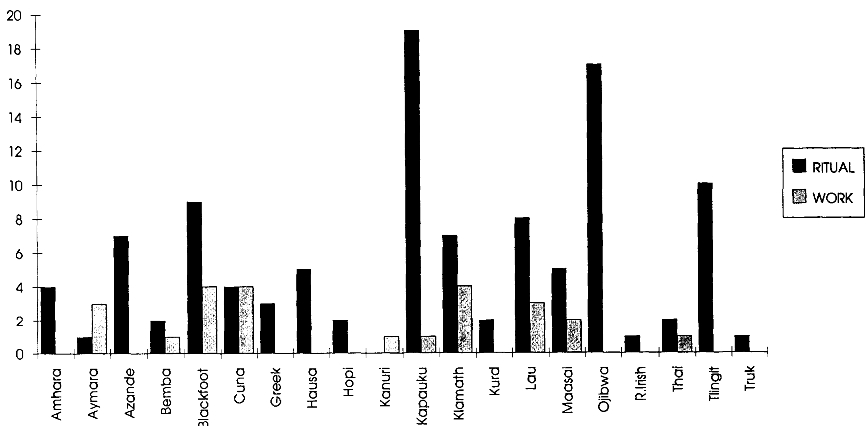

Figure 1. Frequency of OCD-like features in ritual and work in 20 cultures.

The ritual units tend to be about 15 percent longer than the work units, although both were defined as a single action or thought. Apparently, ethnographers like to give slightly more detailed descriptions of ritual than of work. But this difference is not the source of the difference in frequency of OCD features. If we divide the number of OCD features in the segment from each culture by the number of sentences in the segment, we get the number of OCD features per sentence. Using this corrected frequency, the difference in number of OCD features in rituals and in work and the difference in number of units containing at least one OCD-like feature are both still significant ($t(19) = 3.51$; $p = .002$, and $t(19) = 3.49$; $p = .002$, respectively).

These results strongly support the main hypothesis that rituals contain more OCD-like features than comparable episodes of work.

SPECIFIC FEATURES THAT DIFFER IN FREQUENCY

What are the specific features that are more common in rituals than work? Figure 2 shows the overall prevalence of each OCD-like feature in ritual and in work. If we use chi-square tests to compare the proportions of ritual units and work units that exhibit each kind of OCD-like feature, we find that there are seven features that show large and significant differences in frequency. In rituals, people often *fear that something terrible will happen* to the self or someone else (*FT* chi-square = 5.50, $p = .02$. (In all of these chi-squares, $n = 800$ units, $df = 1$; we used Fisher's exact test whenever the expected cell frequencies were too low to permit valid use of the chi-square statistic). More specifically, people *fear that they themselves might cause harm* to themselves or to others (*FH* Fisher's exact test $p = .03$, one-tailed). Corresponding to this, in rituals people often take *measures to prevent harm* to the self or others (*PH* chi-square = 8.18, $p = .004$). Another feature much more common in rituals than in work is *concern or disgust with bodily wastes or secretions* (*CS* chi-square = 15.28, $p = .0001$). People conducting rituals also commonly *attend to thresholds or entrances,* and attribute *special significance to colors* (*AT* and *C,* Fisher's exact test $p = .031$, one-tailed), while these orientations are rare in work. And ethnographers describe more *repetitive actions* in rituals than in work (*RA* Fisher's exact test $p = .034$, one-tailed).

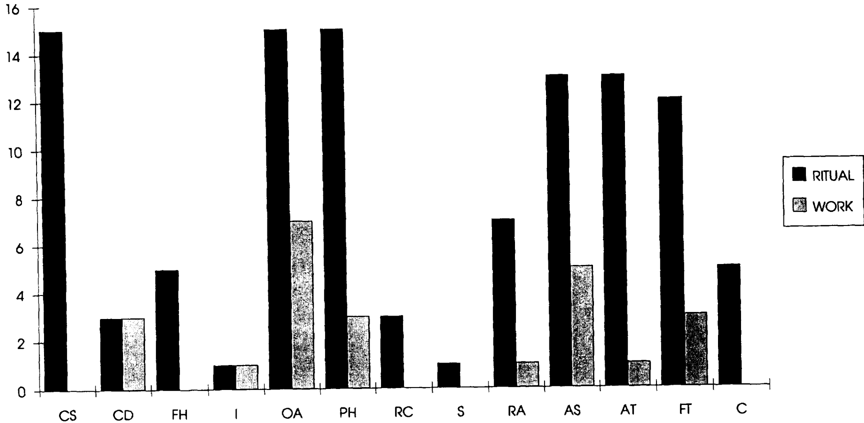

Figure 2. Frequency of each OCD-like feature in ritual and work. CS: concern or disgust with bodily wastes or secretions; CD: concern with dirt, germs, environmental toxins (also includes concern with "pollutants"); FH: fear of hurting others or the self; I: concern with household items; OA: ordering or arranging things so that they are in their proper place; PH: measures to prevent harm to self or others; RC: measures to remove contact with contaminants; S: scrupulosity: extremely rigid and literal interpretation of a religious doctrine; RA: repeating actions; AS: arranging people or things symmetrically or in some precise spatial configuration; AT: attention to a threshold or entrance; FT: fear that something terrible will happen (fire, death, illness of self or other); C: colors that have special significance.

There were six other features that each occurred with too low a frequency to produce statistically significant differences (*CD, I, RC, S, OA, AS*). If we combine all six of these, we find that, altogether, they are more than twice as common in rituals as in work, and this difference is highly significant (chi-square = 8.22, $p = .004$). It is striking to observe that, of the 13 different kinds of OCD-like features that we found in ethnographies, *none* occurred more often in work than in rituals.

Since the sample of 800 segments used in the above analyses come from only 20 cultures, in one sense they are not completely independent observations. If the segments taken from each ritual were correlated with each other, then the true n in the chi-square tests above would be far less than 800, so the p values given would overstate the true probabilities. We tested the independence of the segments within each ritual and within each sample of work in two ways. First, we did what amounts to a split-half "reliability" test, comparing the odd-numbered segments from each culture with

the even-numbered segments. We found no tendency for cultures whose rituals have one or more OCD-like features in their odd-numbered segments to have OCD-like features in their even-numbered segments (Fisher's exact test two-tailed $p = .51$). Comparing odd- and even-numbered segments of work, we again found no association ($p = .17$). The Pearson correlation between the number of OCD-like features in the odd- and even-numbered segments of the rituals of the 20 cultures was .00, while the correlation for the work samples was .13 (n.s.). These statistics indicate no tendency for OCD-like features to be distributed nonrandomly across the 20 cultures, suggesting that the segments from each culture are essentially independent observations. If the individual segments from each culture were not independent, we would also expect to find a tendency for OCD-like features to cluster in adjacent segments. So we did run tests on each of the 20 samples of work and each of the rituals, checking to see if segments with one or more OCD-like features tended to be clustered *within* the segments from each culture. Only one of the ten cultures that had OCD-like features in work showed any tendency to clustering, while only three of the 19 ritual samples containing OCD-like features showed significant clustering. (The mean Z value for the 29 samples was .33, indicating no overall tendency to cluster.) This again indicates that we can properly treat the segments within each culture as independent cases, validating our chi-square tests.

However, to provide a conservative test of our hypothesis, we nevertheless did a set of binomial analyses, treating each culture as a separate case. There are 17 cultures in which the ritual segments had more total OCD-like features than the work segments, and two in which the work segments had more such features (in one culture, the number is the same). Using the sign test, if there were equal rates of occurrence of OCD-like features in ritual and work, the binomial probability of obtaining this distribution (17 to 2) by chance would be .0003. We also did sign tests on specific features. There were eight cultures in which concern with bodily secretions occurred more often in rituals and no cultures in which this feature occurred more often in work (binomial probability for $CS = .004$). There were nine cultures in which measures to prevent harm were more common in rituals and only one in which they were more common in work ($PH\ p = .01$). There were four cultures in which attention to a threshold occurred more often in rituals and none

in which it occurred more often in work ($AT\ p = .06$). The frequencies of occurrence of the other ten features did not permit clear cut results by the binomial test, but if we combine all ten of these features, as a set they occurred more often in the rituals of 14 cultures and more often in the work of three cultures, for which the sign test gives $p = .006$. Thus, if we use a sample of cultures as the cases rather than each specific action or thought, we still find strong support for our hypothesis.

There was one unexpected finding: repetitive washing—which is the most common symptom in OCD patients—was not described anywhere in our statistical sample of 20 ethnographies. However, we recorded several examples of washing and other kinds of purification in the first section of this article, and a general knowledge of rituals suggests that these features are common and should be well-represented in a larger sample of rituals. In our small sample of 20 segments from 20 rituals, we found no features corresponding to 12 other more or less common symptoms of OCD, although many of them were salient in the rituals reviewed in the beginning of this article. It remains to be seen whether a larger sample would confirm the inference that these other 12 features occur at a higher rate in rituals than in other contexts.

But it is clear there are many different OCD-like features that do occur more commonly in transition rituals than in comparable episodes of work. These features cluster in rituals, where they are more common and more intense than in other domains of life. These consistent results provide strong support for our hypothesis.

There is a potential methodological problem in this study, as in all studies that rely on the analysis of ethnographies. It is possible that ethnographers are biased in their recognition, investigation, or description of features in different domains. For example, ethnographers may be more likely to *report* measures to prevent harm, or the significance of colors, when they occur in a ritual than when they occur in the context of work. OCD-like features may seem stranger, more important, or just more interesting in one context than another, or ethnographers may record them only in the contexts where they expect them and believe that they are significant. However, we have some evidence suggesting that our findings are not the result of biased reporting. We were not satisfied with the list of symptoms that clinicians have found to be diagnostic of OCD; as anthropologists, we predicted that food and water

would appear in rituals much more often than in work, and that numbers would appear more often (even if the ethnographer did not specify that the numbers had any special significance). Most ethnographers probably share our belief that food, water, and numbers are especially important in rituals. Yet the ethnographers in our sample report food significantly more often in their descriptions of *work* than in their descriptions of rituals ($t = 3.59$; $p = .002$); they also mention water more often in connection with work, although this difference is not significant. The descriptions refer to numbers just about equally often in work and ritual. The fact that these *non*-OCD features do *not* appear more frequently in these descriptions of rituals indicates that the higher rates of occurrence of *OCD-like* features is not a result of biased reporting.

This study sampled small segments from transition rituals only. In order not to bias our sample, we selected the first description of a ritual we found in each ethnography, whatever the quality of the account. The excerpts we coded often did not provide the kind of thick description that would enable us to make accurate qualitative comparisons between the ritual features and OCD symptoms. For example, consider the problem of interpreting the feature, "numbers with special significance." In a description of a Greek marriage ritual, Sanders (1962) writes that people throw coins into a sieve, and then "three shots are fired to announce to the village that this has been done." We have no way of knowing from this passage alone why people fire precisely three shots, or what the significance of the number three is in other contexts—if indeed the number three has any significance. However, the more extensive and intensive survey of the ethnographic literature reported in the first part of this article supports the inference that OCD-like symptoms are prevalent in rituals. Moreover, the rituals surveyed in the first part of the article include many curing and protection rites, fertility rites, and intensification ceremonies, suggesting that our findings from the statistical sample of transition rituals probably generalize to many kinds of rituals.

This cross-cultural sample shows that OCD-like features are far more prevalent in rituals than in work. Of course, the actual behavioral manifestations, thoughts, and emotions that characterize either OCD or ritual are intrinsically variable. They can be expressed only through some particular cultural framework. Obviously showering and hand washing under faucets will not be

prominent in places where there is no plumbing, while purification with penis blood or white clay will be rare in cultures that lack the relevant cultural constructs. Checking stoves and door locks and collecting old newspapers is possible only when these objects exist; fears about eating food cooked by a menstruating woman is only likely where menstruation is a culturally constituted danger. More generally, concern about doing or saying something taboo will have a different focus depending on just what is culturally prohibited, as will the kinds of images regarded as horrific. Relatively little research has been done on OCD in other cultures, and the existing literature often includes ill-defined categories and only the sketchiest case descriptions. Systematic comparisons using standardized diagnostic criteria are only beginning.[6] The very limited cross-cultural research conducted so far suggests that there may be moderate differences in relative frequencies of symptoms and interesting differences in the content of, for example, pollution concerns: AIDS in the United States, fear that meat and dairy products will be mixed in Israel, and impurities that preclude prayer in Saudi Arabia. The basic kinds of symptoms apparently vary less than might be expected. But much more work needs to be done to explore these variations. Here, we should just note their methodological significance: in all probability, the list of diagnostic symptoms that we used in the cross-cultural sample relied too heavily on terms that represent the culture-specific American manifestations of the underlying mechanism. To the extent that this criterion list is too narrowly defined, the results of our study should *under*represent the prevalence of OCD-like features in rituals from other cultures. A culture-by-culture comparison of OCD symptoms in each culture with the rituals of that specific culture might reveal an even closer correspondence than we have found using American diagnostic criteria on a world sample.

IS THERE A COMMON MECHANISM THAT PEOPLE USE IN COLLECTIVELY GENERATING AND REPRODUCING CULTURAL RITUALS?

We have found a detailed, feature-by-feature correspondence between rituals and OCD. But is it simply tautological to say that cultural rituals resemble OCD rituals? Not at all, for five reasons. First, we found a very specific, well-delineated empirical resem-

blance between OCD and rituals: they both manifest a high incidence of concern about secretions, colors with special significance, attention to thresholds, repetitive actions, fear that something terrible will happen or that one might cause harm, and measures to prevent harm. Second, OCD-like features sometimes do occur in work and elsewhere in everyday life, and it was logically possible to falsify our hypothesis: OCD-like features *could be* more common in work than in rituals. Third, some rituals contain none of these features and many rituals contain other features, so these features are neither necessary nor sufficient to constitute a ritual. Fourth, no anthropological definition of ritual is formulated with reference to these features, so even if anthropologists *were* actually labeling activities "rituals" just when they observed these features, anthropologists were not aware of using these criteria. Fifth and finally, it is doubtful that anthropologists do use these features to *define* the concept, "ritual": probably it is the rigidity of the prescriptions (e.g., for transforming, curing, or healing) and the stereotypy of the same actions and concerns replicated on successive occasions that results in anthropologists calling a sequence of action a "ritual."

So what does this correspondence between rituals and obsessive-compulsive disorder mean? Consider the analogy with language. The earliest evidence that there was a specialized mechanism for language, located in a specific region of the brain, came from analyses of patients with a form of neuropathology. People with damage to Broca's area were consistently found to have the same impairment, an inability to speak. From study of a specific pathology came a profound understanding of the mechanisms underlying normal behavior. Similarly, by studying OCD patients, we can learn about a type of action that is normal, indeed universal.

The discovery of a specific psychological mechanism for human language does not mean that all languages have the same grammar, let alone that a given sound means the same thing in two languages. In the same way, the discovery of a possible universal psychological mechanism for ritual would *not* mean that all rituals have the same structure, or that the color white means the same thing in every culture, or that thresholds have the same meaning everywhere.[7] Languages are highly constrained and display certain universal features, and each person's acquisition and use of language is possible only because of the specific human capacity for language—but there are many different, mutually unintelligible hu-

man languages. In the same way, it appears that all rituals may be constructed out of a limited set of features, and that every person's disposition to learn and enact rituals may be the product of *a specific human capacity for ritual.* In a few people, this universal human capacity malfunctions, becoming overactive, and they construct meaningless idiosyncratic rituals on their own. Most people, however, learn rituals transmitted to them from their cultural predecessors. These traditional rituals have a rich, multilayered network of conventional meanings. From the subjective point of view of an actor participating in a culturally legitimated ritual, the actions have transformative, curative, or other constitutive powers: the ritual transforms a girl into a woman, atones for a murder, or brings rain. Cultural rituals create and communicate things because their symbolism grows out of deep cultural roots. Furthermore, the actor experiences her own performance as linking her with other enactors of the same ritual—past, present, and future. In contrast, an individual who feels compelled to perform similar acts that she herself acknowledges to be devoid of cultural meaning or social purpose is alienated by her own actions, and hence alienated from her social milieu. OCD patients are very secretive about their condition—concealing their symptoms from their spouses, families, and therapists—because they themselves recognize that their obsessions and compulsions are meaningless and hence "crazy."

In this article, we have not explored the syntactic organization of these features, or their particular realizations. Within and between cultures, people construct diverse rituals by combining the same elements in different ways. The distinctiveness of the ritual worlds of different cultures derives partly from the culture-specific manifestations of these apparently universal elements: the specific numbers and colors they use, the particular bodily secretions that they regard as potent, the special forms of purification they invent, and the unique spatial arrays and symmetrical patterns they construct. Different OCD patients have different horrific images and take different measures to prevent harm. There are similar differences among cultures: In the United States, it is horrific to imagine cutting the throat of a goat so that its blood gushes out over the ground, and then cutting off pieces of its tongue, ears, and tail, while in West Africa such a sacrifice is a reassuring measure to protect people from harm. Slashing one's penis seems horrifying to Americans. But penile blood-letting is both cleansing and erotic

for the Ilahita Arapesh, whose "culturally constituted ideas interact with psychobiological proclivities to produce an irreducible experience, which, because of the several satisfactions it confers, motivates the actor to repeat the operation in future" (Tuzin, in press, p. 5).

While people may use a common repertoire of elements to generate rituals, the rituals they generate are only constrained, and not determined, by these elements. The basic forms are realized in diverse manifestations and combined in diverse sequences. This article is composed of only 26 letters and a few symbols, yet its contents was not predictable from those components. In addition, rituals include many other elements that apparently do not correspond to the OCD symptoms enumerated here: OCD-like features alone are not sufficient to constitute the rituals of any culture. For example, rituals often involve costumes, masks, effigies, icons, or other models of people or gods, and crucial paraphernalia of all kinds, as well as prayers and invocations, offerings, acts of communion, eating, and drinking. Furthermore, people in different cultures create new meanings for these common elements, transmit and modify them in distinctive ways, and make their own political uses of them. The more we know about the repertoire of components that people use for constructing rituals, the better we will be able to understand the processes.

What determines how these 25 features are distributed across patients and collective rituals? Any one OCD patient has only one or a few of the 25 characteristic features at any one time, and any one ritual has only a subset of them. Little is known about how OCD patients "select" their specific symptoms. Although there is a heritable, apparently genetic component of OCD, there is no particular tendency for children to have the same specific symptoms as their parents, and even identical twins may have very different—and mutually incomprehensible—symptoms. Similarly, it remains for future research to determine how cultures select features for use in particular rituals. Are some features specially effective in producing certain kinds of transformations and other features good for curing, while still other features are powerful means of intensifying social solidarity or repairing disrupted social relations?

Everyone occasionally exhibits mild personal obsessions and compulsions in a variety of nonritual contexts, and attenuated forms of similar behaviors may be included in the routines of

everyday life—as our data on work episodes shows. At certain times, people condense a large number of these specific features into an integrated, culturally meaningful ritual. When these same features are correlated and intense in an individual's behavior but do not make cultural sense, they are diagnostic of OCD. In other words, OCD involves a malfunctioning of the psychological mechanism underlying the process by which people generate culturally legitimated rituals with shared meanings.

What is this mechanism—how do people constitute cultural rituals? To transform or solidify social status or relationships and to heal or prevent harm, people reorder the world, constructing new structures. To effect such rituals, people mark only the salient distinctions and reduce their actions to the essential constitutive performances. They often repeat the crucial actions or perform multiple actions that converge on the same result. They simplify, drawing the sharpest possible contrasts, intensifying the directive force of their action by narrowing its focus. By simplifying and concentrating order, they feel able to manipulate it so as to bring about the desired state. While doing so, they ignore many of the everyday distinctions with which they are concerned outside the ritual context. Social relations and the natural world are too complex and too variable to manipulate as is. To control them, they have to be distilled, clearly demarcated, and contrasted in absolute oppositions, ignoring all that is unmarked, ambiguous, and unmanageable.

Every culture transmits to its members a menu of rituals that they can reenact to create or transform culturally important structures and states. In addition, individuals in some circumstances may feel an imperative need to order or reorder their personal worlds in ways for which the culture does not provide a clear template. Individuals may experience personal traumas that threaten to break down the order that sustains their lives. Some individuals may be constitutionally vulnerable to anxieties or the need for absolute order and clarity. For these reasons, some individuals may have fears and perform repetitive acts that do not make sense to others in their culture, but that—for the individual—help to restore the necessary order in the world.

Whether idiosyncratic or collectively constituted, however, the same component ritual acts and "obsessive" emotional concerns operate to create the necessary order. Ritual performers control

and reorder the world by concentrating and simplifying it, distilling it to its manipulable essence. For example, in both OCD and cultural rituals, people arrange things in precisely specified, often symmetric spatial arrangements, rather than in more complex or less rigid arrangements. In both ritual and OCD, people are often meticulously scrupulous about adherence to the precise letter of the law, rather than tolerating more latitude, slack, imperfection, or margin for small errors. In both circumstances, people often focus on one very specific danger to the exclusion of all others and take excessive precautions to make themselves absolutely safe, rather than tolerating a reasonable, even infinitesimal degree of risk from many sources. In particular, both OCD patients and ritual performers often wash over and over, attempting to achieve absolute certainty of absolute purity, rather than settling for some more moderate, satisfactory level of cleanliness. They are concerned about any possible contamination, however infinitesimal, because for them purity is absolute, all-or-none. In both contexts, people may seek certain protection from one particular danger, rather than taking reasonable precautions according to the extent of various risks. Similarly, people often repeat a rigidly prescribed, stereotyped sequence of actions, rather than varying their actions according to varied conditions. People often focus on the special significance of a single color, number, item, or action, instead of concerning themselves with their broad, innumerable, context-specific significances.

This simplification, focusing, and distillation of meaning give these acts and concepts their formative and transformative power. By sharpening contrasts and eliminating extraneous distractions, these acts and concepts make the essential distinctions dramatically salient, and hence accessible to manipulation. By concentrating many dimensions of significance into a few acts and concepts, rituals give these acts and concepts tremendous, mysterious power. Hence, these are the acts and concepts that people tend to use to order or reorder the world. When people acquire the combinations of elements they use and their meanings from others, and use them at times and places that are culturally prescribed, for culturally formulated purposes (and especially when they do so collectively), this performance is called a ritual. But in some people, organic damage, physiological imbalance, or sociopsychological trauma apparently causes hyperactivity of this ritual mechanism. This

drives people to perform some of the basic ritual actions idiosyncratically, to be idiosyncratically preoccupied with certain kinds of ideas, or to attribute idiosyncratic meaning to certain qualities of the world. These personal obsessions and compulsions resemble culturally constructed rituals in form and content, but lack shared meaning and collective legitimation of their constitutive efficacy. So the person with these OCD symptoms typically does not entirely believe in them and is perplexed and embarrassed by them. The idiosyncratic actions, ideas, and meanings may come to dominate such a person's attention to the point that they interfere with the everyday activities, relationships, and thinking that the person wishes to engage in. But when it is operating normally, this ritual mechanism is what enables people to mark and constitute life transitions, to reinforce and transform social relationships, to cure illness and cope with misfortune, to express and to respond to the ineffable paradoxes of human life.

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NOTES

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1. Of course, OCD patients would never smear themselves with substances they regarded as polluting; and the initiators are *making* the novices fear that terrible harm will come to them. The point is that the ritual makes the novices—just like OCD patients—extremely concerned about pollution and horrific dangers.

2. In other cultures in this part of New Guinea, penis bleeding is done in imitation of menstruation, which is regarded as a natural process that purifies women.

3. Radcliffe-Brown (1964[1922]), Tambiah (1985), and Bloch (1987) have all noted that dance is a kind of stereotypic, repetitive, predictable movement.

4. Ethnographers are rarely explicit about the emotions that people have toward the actions in myths, or the attitudes that they would have about someone actually doing the things recounted in myths. So we have to assume that the people recounting the myths regard episodes like these as horrific.

5. In fact, Turner (1966) shows that there is widespread use of colors in rituals around the world—but no one has investigated whether colors or any other features are more important in rituals than in other cultural domains.

6. Although they do not use strictly comparable criteria, there are a number of studies of OCD in other cultures. For Norway, see Kringlen 1965; for Japan, see Inouye 1965 and Honjo et al. 1989; for Hong Kong, see Lo 1967; for England, see Stern and Cobb 1978 and Rachman and Hodgson 1980; for Egypt, see Okasha et al. 1968 and Okasha 1977; for Israel, see Greenberg 1984 and Hoffung et al. 1989; for Saudi Arabia, see Mahgoub and Abdel-Hafiez 1991; for India, see Akhtar et al. 1975, Khanna et al. 1987, Khanna et al. 1988, and Khanna et al. 1990; for Bangladesh, see Chakbraborty and Banerjee 1975; for the United States, see the sources cited at the beginning of the article. The World Health Organization and the National Institute of Mental Health are currently doing a study aimed at determining the symptoms of OCD in remote populations of several non-Western countries.

7. There is no real reason to believe that the human basal ganglia have been shaped by natural selection related to any adaptive value of ritual, although it is possible that the functions of the mammalian basal ganglia do include grooming and other social "rituals."

REFERENCES CITED

Akhtar, Salman, N. N. Wig, V. K. Varma, Dwarka Pershad, and S. K. Verma
1975 A Phenomenological Analysis of Symptoms in Obsessive-Compulsive Neurosis. British Journal of Psychiatry 127:342–348.

American Psychiatric Association
1987 Diagnostic and Statistical Manual of Mental Disorders; DSM-III-R. 3rd rev. ed. Washington, DC: American Psychiatric Association Press.

Arensberg, Conrad M., and Solomon T. Kimball
1968[1940] Family and Community in Ireland. 2nd ed. Cambridge, MA: Harvard University Press. (Used in the statistical sample of rituals and work.)

Berg, Carol J., Judith Rapoport, and Martine Flament
1986 The Leyton Obsessional Inventory-Child Version. Journal of the American Academy of Child and Adolescent Psychiatry 25:84–91.

Berg, Carol Zaremba, Agnes Whittaker, Mark Davies, et al.
1988 The Survey Form of the Leyton Obsessional Inventory-Child Version: Norms from an Epidemiological Study. Journal of the American Academy of Child and Adolescent Psychiatry 27:759–763.

Berg, Carol Zaremba, Judith Rapoport, Agnes Whittaker, et al.
1989 Childhood Obsessive Compulsive Disorder: A Two-Year Prospective Follow-up of a Community Sample. Journal of the American Academy of Child and Adolescent Psychiatry 28:528–533.

Berndt, Ronald M., and Catherine H. Berndt
1964 The World of the First Australians: An Introduction to the Aboriginal Life of the Australian Aborigines. Rev. ed. Chicago: University of Chicago Press.

Bloch, Maurice
1974 Symbols, Song, Dance and Features of Articulation: Is Religion an Extreme Form of Traditional Authority? Archives Europeenes de Sociologie 15:55–81.

1987 The Ritual of the Royal Bath in Madagascar: The Dissolution of Death, Birth and Fertility into Authority. *In* Rituals of Royalty. D. Cannadine and S. Price, eds. Pp. 271–297. Cambridge: Cambridge University Press.
Bogoras, Waldemar
1979[1904–09] Shamanistic Performance in the Inner Room. *In* Reader in Comparative Religion: An Anthropological Approach. 4th ed. William A. Lessa and Evon Z. Vogt, eds. Pp. 302–307. New York: Harper and Row.
Buechler, Hans C., and Judith-Maria
1971 The Bolivian Aymara. New York: Holt Reinhart, and Winston. (Used in the statistical sample of rituals and work.)
Chakbraborty, A., and G. Banerjee
1975 Ritual, a Culture Specific Neurosis and Obsessional States in Bengali Culture. Indian Journal of Psychiatry 17:211–216.
Clomipramine Collaborative Study Group
1991 Clomipramine in the Treatment of Patients with Obsessive-Compulsive Disorder. Archives of General Psychiatry 48:730–738.
Cohen, Ronald
1971 Dominance and Defiance: A Study of Marital Instability in an Islamic African Society. Anthropological Studies, 6. Washington, DC: American Anthropological Association. (Used in the statistical sample of rituals and work.)
Cooper, J.
1970 The Leyton Obsessional Inventory. Psychological Medicine 1:48–64.
d'Aquill, Eugene, Charles D. Laughlin, Jr., and John McManus
1979 The Spectrum of Ritual: A Biogenetic Structural Analysis. New York: Columbia University Press.
De Laguna, Frederica
1972 Under Mount Saint Elias: The History and Culture of the Yakutat Tlingit. Smithsonian Contributions to Anthropology, 7. Washington, DC: Smithsonian Institution Press. (Used in the statistical sample of rituals and work.)
Dozier, Edward P.
1954 The Hopi-Tewa of Arizona. University of California Publications in American Archeology and Ethnology, 44. Berkeley: University of California Press. (Used in the statistical sample of rituals and work.)
Douglas, Mary
1966 Purity and Danger: An Analysis of Concepts of Pollution and Taboo. New York: Frederick A. Praeger.
Evans-Pritchard, E. E., ed.
1974 Man and Woman among the Azande. New York: The Free Press. (Used in the statistical sample of rituals and work.)
Faron, Louis
1967[1963] Death and Fertility Rites of the Mapuche (Araucanian) Indians of Central Chile. *In* Gods and Rituals; Readings in Religious Beliefs and Practices. American Museum Sourcebooks in Anthropology. John Middleton, ed. Pp. 227–254. Garden City, NY: Natural History Press.
Firth, Raymond
1967 Tikopia Ritual and Belief. London: George Allen and Unwin.
Flament, Martine F., Agnes Whitaker, Judith Rapoport, et al.
1988 Obsessive-Compulsive Disorder in Adolescence: An Epidemiological Study. Journal of the American Academy of Child and Adolescent Psychiatry 27:764–771.

Freud, Sigmund
1907[1963] Obsessive Acts and Religious Practices. *In* Character and Culture. Philip Rieff, ed. Pp. 17–26. New York: Collier.
1950[1912–13] Totem and Taboo: Some Points of Agreement between the Mental Lives of Savages and Neurotics. James Strachey, trans. New York: Norton.
Gell, Alfred
1975 The Metamorphosis of the Cassowaries: Umeda Society, Language and Ritual. London School of Economics Monographs of Social Anthropology, 51. London: Athlone Press; Atlantic Highlands, NJ: Humanities Press.
Gladwin, Thomas, and Seymour B. Sarason
1953 Truk: Man in Paradise. Viking Fund Publications in Anthropology, 20. New York: Wenner-Gren Foundation for Anthropological Research. (Used in the statistical sample of rituals and work.)
Goody, Jack
1961 Religion and Ritual: The Definitional Problem. British Journal of Sociology 12:142–164.
Greenberg, D.
1984 Are Religious Compulsions Religious or Compulsive: A Phenomenological Study. American Journal of Psychotherapy 38:524–532.
Gregor, Thomas
1977 Mehinaku: The Drama of Daily Life in a Brazilian Village. Chicago: University of Chicago Press.
Hansen, H. H.
1961 The Kurdish Woman's Life. Kebenhavn: Nationalmuseet. (Used in the statistical sample of rituals and work.)
Hocart, A. M.
1929 Lau Island, Fiji. Bulletin No. 62 of the Bernice P. Bishop Museum. Honolulu, HI: Bernice P. Bishop Museum. (Used in the statistical sample of rituals and work.)
Hoffung, R., D. Aizenberg, H. Hermesh, and H. Munitz
1989 Religious Compulsions and the Spectrum Concept of Psychopathology. Psychopathology 22:141–144.
Honjo, S., C. Hirano, S. Murase, T. Kaneko, T. Sugiyama, K. Ohtaka, T. Aoyama, Y. Takei, K. Inoko, and S. Wakabayashi.
1989 Obsessive-Compulsive Symptoms in Childhood and Adolescence. Acta Psychiatrica Scandinavica 80:83–91.
Huizinga, Johan
1955[1938] Homo Ludens: A Study of the Play Element in Culture. Boston: Beacon Press.
Inouye, Eiji
1965 Similar and Dissimilar Manifestations of Obsessive-Compulsive Neurosis in Monozygotic Twins. American Journal of Psychiatry 121:1171–1175.
Insel, T., ed.
1985 New Findings in Obsessive-Compulsive Disorder. Washington, DC: American Psychiatric Association Press.
Jenike, Michael A., Lee Baer, and William E. Minichiello, eds.
1990 Obsessive Compulsive Disorders: Theory and Management. 2nd ed. Chicago: Year Book Medical Publishers.

Jenness, Diamond
1935 The Ojibwa Indians of Parry Island, Their Social and Religious Life. Canada Department of Mines. National Museums of Canada Bulletin, 78. Ottawa: J. O. Patenaude. (Used in the statistical sample of rituals and work.)
Karno, Marvin, Jacqueline M. Goulding, Susan B. Sorenson, and M. Audrey Burnham
1988 The Epidemiology of Obsessive-Compulsive Disorder in Five U.S. Communities. Archives of General Psychiatry 45:1094–1099.
Khanna, Sumant, P. N. Rajendra, B. V. Karur, and S. M. Channabasavanna
1987 Inter-Rater Reliability of a Classification of Obsessions and Compulsions. Psychopathology 20:29–33.
Khanna, Sumant, and S. M. Channabasavanna
1988 Phenomenology of Obsessions in Obsessive-Compulsive Neurosis. Psychopathology 21:12–18.
Khanna, Sumant, V. G. Kaliaperumal, and S. M. Channbasavaana
1990 Clusters of Obsessive-Compulsive Phenomena in Obsessive-Compulsive Disorder. British Journal of Psychiatry 156:51–54.
Kozak, Michael J., Edna B. Foa, and Gail Steketee
1988 Process and Outcome of Exposure Treatment with Obsessive-Compulsives: Psychophysiological Indicators of Emotional Processing. Behavior Therapy 19:157–169.
Kringlen, Einar
1965 Obsessional Neurotics: A Long-term Follow-up. British Journal of Psychiatry 111:709–722.
Leach, Edmund R.
1968 Ritual. *In* International Encyclopedia of the Social Sciences. 13th ed. Pp. 520–526. New York: Macmillan and Free Press.
Levinson, David, and Richard A. Wagner
1986 General Culture and Religious Data. HRAF Research Series in Quantitative Cross-Cultural Data, 1. New Haven, CT: Human Relations Area Files.
Lewis, Gilbert
1980 Day of Shining Red: An Essay on Understanding Ritual. Cambridge Studies in Social Anthropology, 27. Cambridge: Cambridge University Press.
Lo, W. H.
1967 A Follow-Up Study of Obsessional Neurotics in Hong Kong Chinese. British Journal of Psychiatry 113:823–832.
Mahgoub, Osama Mohamed, and Hassan Babiker Abdel-Hafiez
1991 Pattern of Obsessive-Compulsive Disorder in Eastern Saudi Arabia. British Journal of Psychiatry 158:840–842.
Malinowski, Bronislaw
1978[1935] Corla Gardens and Their Magic; A Study of the Methods of Tilling the Soil and of Agricultural Rites in the Trobriand Islands. New York: Dover.
McKim, Fred
1947 San Blas: An Account of the Cuna Indians of Panama. Etnologiska Studier, 15. Henry Wassẽn, ed. Göteborg: Elanders Boktryckeri Aktiebolag. (Used in the statistical sample of rituals and work.)
Meigs, Anna S.
1984 Food, Sex, and Pollution: A New Guinea Religion. New Brunswick, NJ: Rutgers University Press.
Messing, Simon D.
1985[1959] Highland Plateau Amhara of Ethiopia. New Haven, CT: Human Relations Area Files. (Used in the statistical sample of rituals and work.)

Moore, Frank J.
1974 Thailand—Its People, Its Society, Its Culture. New Haven, CT: Human Relations Area Files Press. (Used in the statistical sample of rituals and work.)
Needham, Rodney
1967 Percussion and Transition. Journal of the Royal Anthropological Institute (Man) 2:606–614.
Okasha, A.
1977 Psychiatric Symptomology in Egypt. Mental Health and Society 4:121–125.
Okasha, A., M. Kamel, and A. H. Hassan
1968 Preliminary Psychiatric Observations in Egypt. British Journal of Psychiatry 114:949–955.
Opler, Morris E.
1936 An Interpretation of Ambivalence of Two American Indian Tribes. Journal of Social Psychology 7:82–116.
Ortner, Sherry B.
1978 Sherpas through Their Rituals. Cambridge Studies in Cultural Systems. Cambridge: Cambridge University Press.
Pearsall, Marion
1950 Klamath Childhood and Education. Berkeley: University of California Publications in Anthropological Records, Vol. 9, No. 5. (Used in the statistical sample of rituals and work.)
Poole, Fitz John Porter
1982 The Ritual Forging of Identity: Aspects of Person and Self in Bimin-Kuskusmin Male Initiation. *In* Rituals of Manhood: Male Initiation in Papua New Guinea. Gilbert H. Herdt, ed. Berkeley: University of California Press.
Pospisil, Leopold
1963 The Kapauku Papauans of West New Guinea. Case Studies in Cultural Anthropology. New York: Holt, Rinehart, and Winston. (Used in the statistical sample of rituals and work.)
Rachman, S. J., and R. Hodgson
1980 Obsessions and Compulsions. Englewood Cliffs, NJ: Prentice Hall. (Used in the statistical sample of rituals and work.)
Radcliffe-Brown, A. R.
1964[1992] The Andaman Islanders. Glencoe, IL: Free Press. (Used in the statistical sample of rituals and work.)
Raheja, Gloria Goodwin
1988 The Poison in the Gift: Ritual, Prestation, and the Dominant Caste in a North Indian Village. Chicago: University of Chicago Press.
Rapoport, Judith L., ed.
1989a Obsessive Compulsive Disorder in Children and Adolescents. Washington, DC: American Psychiatric Associaton Press. (Used in the statistical sample of rituals and work.)
1989b The Boy Who Couldn't Stop Washing. New York: Dutton.
1989c The Biology of Obsessions and Compulsions. Scientific American March:82–89.
Reichel-Dolmatoff, Gerardo
1971 Amazonian Cosmos: The Sexual and Religious Symbolism of the Tukano Indians. Chicago: University of Chicago Press.

Richards, Audrey I.
1940 Bemba Marriage and the Present Economic Conditions. The Rhodes-Livingstone Papers, 4. Livingstone, Northern Rhodesia: The Rhodes-Livingstone Institute. (Used in the statistical sample of rituals and work.)
Richards, Audrey
1982[1956] Chisungu: A Girl's Initiation Ceremony among the Bemba of Zambia. London: Tavistock. (Used in the statistical sample of rituals and work.)
Saitoti, Tepilit Ole
1986 The Worlds of a Maasai Warrior. New York: Random House.
Salzman, Leon, and Frank H. Thaler
1981 Obsessive-Compulsive Disorders: A Review of the Literature. American Journal of Psychiatry 138:286–296.
Sanders, Irwin T.
1962 Rainbow in the Rock: The People of Rural Greece. Cambridge: Harvard University Press. (Used in the statistical sample of rituals and work.)
Spencer, Paul
1988 The Maasai of Matapato: A Study of Rituals of Rebellion. Bloomington: Indiana University Press. (Used in the statistical sample of rituals and work.)
Stern, R. S., and J. P. Cobb
1978 Phenomenology of Obsessive-Compulsive Neurosis. British Journal of Psychiatry 132:233–239.
Sturtevant, William C.
1968 Categories, Percussion, and Physiology. Journal of the Royal Anthropological Institute (Man) 3:133–134.
Swedo, Susan E., Judith L. Rapoport, Henrietta Leonard, Marge Lenane, and Deborah Cheslow
1988 Obsessive Compulsive Disorder in Children and Adolescents: Clinical Phenomenology of 70 Consecutives Cases. Archives of General Psychiatry 46:335–341.
Tambiah, Stanley J.
1985 A Performative Approach to Ritual. *In* Culture, Thought, and Social Action: An Anthropological Perspective. Stanley J. Tambiah, ed. Cambridge: Harvard University Press.
Turner, Victor
1962 Chihamba, the White Spirit: A Ritual Drama of the Ndembu. Rhodes-Livingston Paper, 33. Manchester: Manchester University Press.
1966 Color Classification in Ndembu Ritual: A Problem in Primitive Classification. *In* Anthropological Approaches to the Study of Religion. ASA Monograph, 3. Michael Banton, ed. Pp. 47–84. London: Tavistock.
1967a Mukanda: The Rite of Circumcision. *In* The Forest of Symbols: Aspects of Ndembu Ritual. Victor Turner, ed. Pp. 151–280. Ithaca, NY: Cornell University Press.
1967b The Forest of Symbols: Aspects of Ndembu Ritual. Ithaca, NY: Cornell University Press.
1969 The Ritual Process: Structure and Anti-Structure. London: Routledge and Kegan Paul.
1973 The Center Out There: Pilgram's Process. History of Religions 12(3):191–230.
1975 Revelation and Divination in Ndembu Ritual. Ithaca, NY: Cornell University Press.

1982 From Ritual to Theatre: The Human Seriousness of Play. New York: Performing Arts Journal Publications.
1985a Body, Brain, and Culture. *In* On the Edge of the Bush: Anthropology as Experience. Victor Turner, ed. Pp. 249–273. Tucson: University of Arizona Press.
1985b Are There Universals of Performance in Myth, Ritual, and Drama? *In* On the Edge of the Bush: Anthropology as Experience. Victor Turner, ed. Pp. 291–301. Tucson: University Of Arizona Press.
Tuzin, Donald F.
1980 The Voice of the Tamberan: Truth and Illusion in Ilahita Arapesh Religion. Berkeley: University of California Press.
1984 Miraculous Voices: The Auditory Experience of Numinous Objects. Current Anthropology 25:579–596.
1991 Sex, Culture and the Anthropologist. Social Science and Medicine 33:867–874.
Van Gennep, Arnold
1908[1960] The Rites of Passage. Monika B. Vizedom and Gabrielle L. Caffee, trans. Chicago: University of Chicago Press.
Vogt, Evon Z, and Vogt, Catherine C.
1979[1970] Lévi-Strauss among the Maya. *In* Reader in Comparative Religion: An Anthropological Approach. 4th ed. William A. Lessa and Evon Z. Vogt, eds. Pp. 276–285. New York: Harper and Row.
Wall, L. Lewis
1988 Hausa Medicine: Illness and Well-being in a West African Culture. Durham, NC: Duke University Press. (Used in the statistical sample of rituals and work.)
Wallace, Anthony F. C.
1966 Religion: An Anthropological View. New York: Random House.
Wendonja, William
1990 Ritual Trance and Catharsis: A Psychobiological and Evolutionary Perspective. *In* Personality and the Cultural Construction of Society. David K. Jordan and Marc Swartz, eds. Pp. 275–308. Tuscaloosa: University of Alabama Press.
Wilson, Edmund
1979[1956] The Zuni Shalako Ceremony. *In* Reader in Comparative Religion: An Anthropological Approach. 4th ed. William A. Lessa and Evon Z. Vogt, eds. Pp. 288–296. New York: Harper and Row.
Wise, Steven P., and Judith L. Rapoport
1989 Obsessive-Compulsive Disorder: Is It Basal Ganglia Dysfunction? *In* Obsessive Compulsive Disorder in Children and Adolescents. Judith L. Rapoport, ed. Washington, DC: American Psychiatric Press.
Wissler, Clark
1975[1912] Social Organization and Ritualistic Ceremonies of the Blackfoot Indians. New York: AMS Press. (Used in the statistical sample of rituals and work.)